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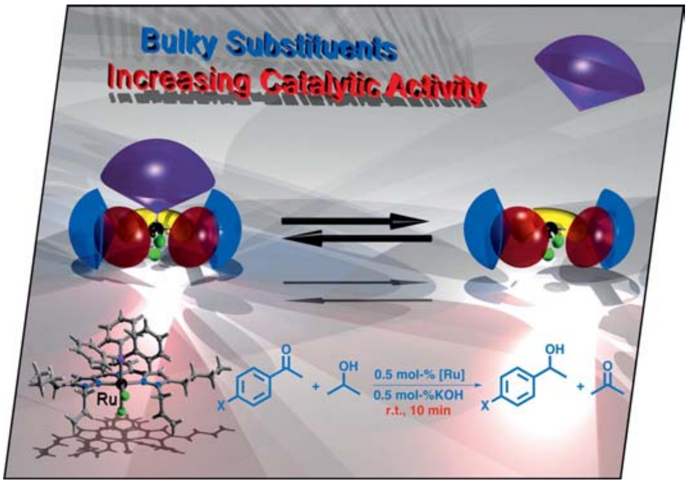
COVER PICTURE

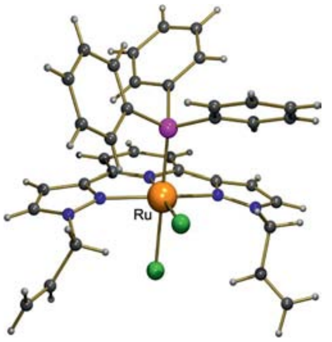
The cover picture shows that bulky substituents on the backbone of a chelating ligand lead to metal–phosphane bond cleavage. Butyl groups in [bis(1-allyl-5-butylpyrazol-3-yl)pyridine](PPh$_3$)RuCl$_2$ give rise to a highly active ruthenium(II) catalyst for transfer hydrogenation. The actual catalytic activity strongly depends on both the substitution pattern at the chelating ligand backbone and the auxiliary ligand coordinated to the ruthenium(II) site (PPh$_3$ vs. CO). Details are discussed in the article by W. R. Thiel et al. on p. 3431ff.



FULL PAPERS

Transfer Hydrogenation Catalysts

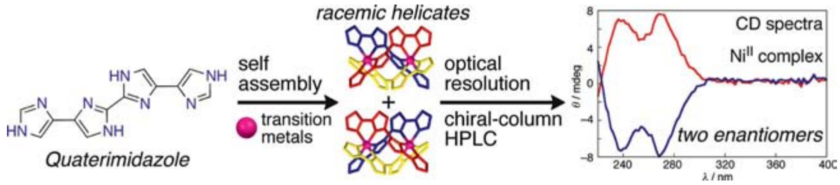
Keywords: Ruthenium / Homogeneous catalysis / Hydrogenation / Transfer hydrogenation / N ligands



Ruthenium(II) complexes derived from simply accessible 2,6-bis(1-allyl-1*H*-pyrazol-3-yl)pyridine ligands show high activities for the transfer hydrogenation of arylketones with turnover frequency values of at least 1200 h^{-1}.

Optical Resolution of Helicates

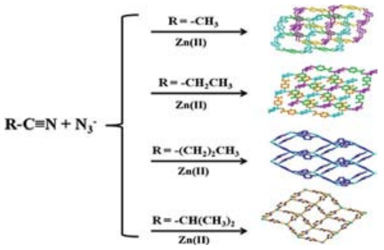
Keywords: Helical structures / Chiral resolution / Hydrogen bonds / Self-assembly



Synthesis and crystal-structure analysis of 4,4′;2′,2′′;4′′,4′′′-quaterimidazole-based triple helicates were achieved. Hydrogen bonds with counteranions and solvents afforded three-dimensional structures. Their high stability, arising from the rigid molecular structures of the ligand, robust chelating coordinations, and outward hydrogen bonds enabled optical resolution by chiral-column HPLC.

Zn Coordination Frameworks

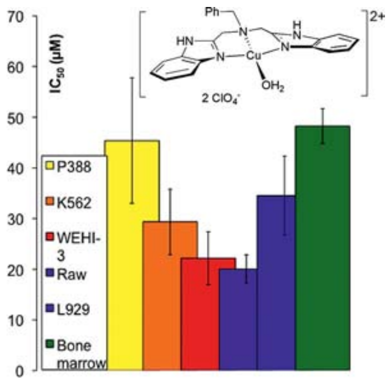
Keywords: N ligands / Metal organic frameworks / Interpenetrating networks / Zinc / Luminescence



Four zinc-directed coordination frameworks have been obtained by in situ tetrazole synthesis and structurally characterized by elemental analyses, FTIR spectroscopy, and thermal studies, as well as by single-crystal and powder X-ray diffraction analyses.

Antineoplastic Copper Complexes

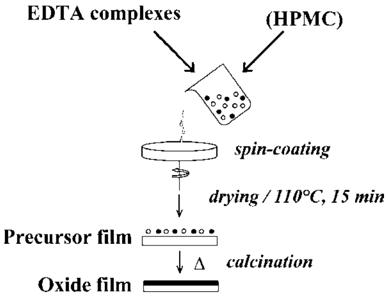
Keywords: Copper / N ligands / Cytotoxicity / Sulfur / Voltammetry



Bis(benzimidazolyl)amino copper(II) complexes display dose-dependent cytotoxic activity against several malignant cell lines. The complexes were spectroscopically and structurally characterized. Complex **4** has a thioether donor appended to the central amine N-atom. Complex **3** has the lowest IC_{50} against all tumor cell lines relative to healthy bone marrow cells.

Aqueous Route to Luminescent Films

Aqueous solutions of yttrium(III)– and dioxidovanadium(V)–edta complexes can be spin-coated onto quartz substrates and calcined under moderate conditions to prepare Y_2O_3, V_2O_5, YVO_4 and YVO_4:Eu films. The addition of a branched cellulose derivative to the sample solutions improved the homogeneity of the films.



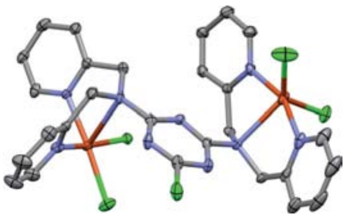
N. Deligne, J. Lamme,
M. Devillers* 3461–3468

An Easy Route to Pure and Luminescent Eu-Doped YVO_4 Polycrystalline Films Based on Molecular or Hybrid Precursors

Keywords: Yttrium / Vanadium / Europium / Luminescence / Thin films

DNA Cleavage

The complexes $[Cu_2(\mu\text{-bdpaT}^{Cl})(\mu\text{-OH})_2(H_2O)_{0.5}(ClO_4)_{0.5}](ClO_4)_{1.5}\cdot(H_2O)_{1.5}$ (**1**) and $[Cu_2(\mu\text{-bdpaT}^{Cl})Cl_4]\cdot 2CH_3OH$ (**2**) were structurally and magnetically characterized. DNA cleavage by the two complexes have been investigated (pH = 7.0, 37 °C). Although **1** did not show any detectable cleavage for DNA, moderate cleavage was observed with **2** (2.5×10^6 fold rate enhancement over noncatalyzed DNA).



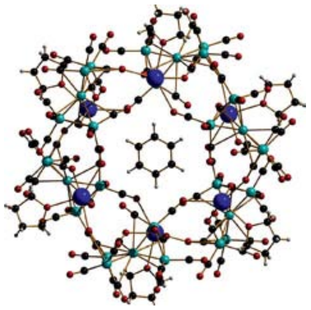
S. S. Massoud,* F. R. Louka, W. Xu,
R. S. Perkins, R. Vicente, J. H. Albering,
F. A. Mautner 3469–3479

DNA Cleavage by Structurally Characterized Dinuclear Copper(II) Complexes Based on Triazine

Keywords: Copper / Dinuclear complexes / Bridging ligands / Magnetic properties / DNA cleavage

Gallium–Metal Bonds

The supramolecular wheel made up of $K(thf)[Ga\{Co_2(CO)_7\}_2]$ units forms channels in the crystal through potassium–isocarbonyl contacts.



T. Adamczyk, G.-M. Li,
G. Linti,* H. Pritzkow, A. Seifert,
T. Zessin 3480–3492

Chromium, Iron and Cobalt Carbonyl Complexes with Gallium Halides: Synthesis and Structures

Keywords: Gallium / Iron / Chromium / Cobalt / Structure elucidation

Palladium-Catalysed Arylation

The palladium-catalysed direct monoarylation at C-5 of bithiophene derivatives with aryl bromides proceeds smoothly by using a low loading of an air-stable catalyst in combination with a cheap and non-toxic base.

K. Si Larbi, S. Djebbar,
H. Doucet* 3493–3502

Palladium-Catalysed Direct Monoarylation of Bithiophenyl Derivatives or Bis(thiophen-2-yl)methanone with Aryl Bromides

Keywords: Arylation / Heterocycles / Homogeneous catalysis / C-H activation / Palladium

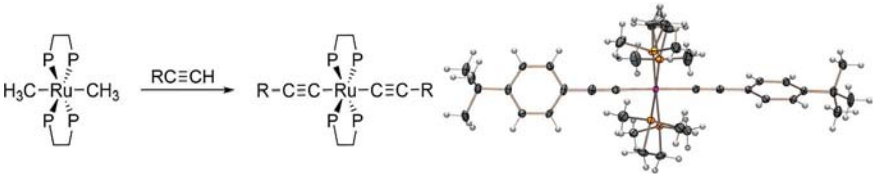
CONTENTS

Alkynylruthenium Complexes

L. D. Field,* A. M. Magill,
T. K. Shearer, S. J. Dalgarno,
M. M. Bhadbhade 3503–3510

Symmetrical Bis(acetylido)ruthenium(II) Complexes

Keywords: Ruthenium / Phosphanes / Metathesis / Alkyne ligands / Dimerisation



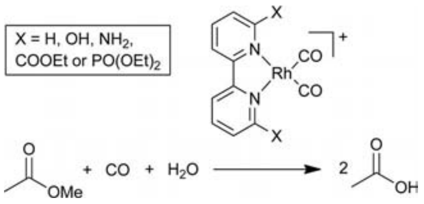
Symmetrical, mononuclear bis(acetylido)ruthenium(II) complexes were prepared by the reaction of a dialkylruthenium complex with terminal alkynes. In some cases, head-to-head dimerisation of the terminal alkynes was observed yielding organic butenynes. The regiochemistry of this dimerisation was found to depend on the solvent used.

Carbonylation Catalysis

C. M. Conifer, D. J. Law, G. J. Sunley,
A. Haynes, J. R. Wells, A. J. P. White,
G. J. P. Britovsek* 3511–3522

💻 Dicarbonylrhodium(I) Complexes of Bipyridine Ligands with Proximate H-Bonding Substituents and Their Application in Methyl Acetate Carbonylation

Keywords: Carbonylation / Rhodium / Acetic acid / Methanol / Carbon monoxide / Homogeneous catalysis



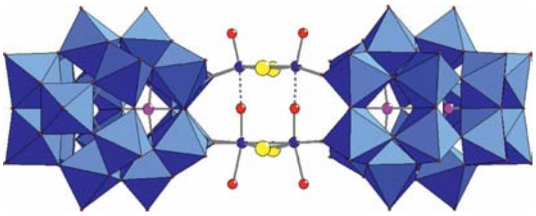
A series of dicarbonylrhodium(I) complexes containing bipyridine ligands with proximate H-bonding substituents have been prepared, and their catalytic properties for the carbonylation of methyl acetate have been investigated.

Polyoxothiometalates

M.-A. Pilette, S. Floquet, J. Marrot,
E. Cadot* 3523–3528

💻 Synthesis, Structure, and Behavior in Solution of the Dawson Thio Derivative $[(P_2W_{17}O_{61})_2(H_4Mo_4S_4O_6)]^{16-}$

Keywords: Molybdenum / Tungsten / Polyoxometalates / Sulfur / Isomerization



The polyoxothiometalate $[(P_2W_{17}O_{61})_2\{Mo_4S_4O_4(OH_2)_2\}]^{16-}$ has been synthesized and characterized. The anion has a “sandwich-like” dimeric structure in which the two α_2-$[P_2W_{17}O_{61}]^{10-}$ subunits are connected to the central cluster $\{H_4Mo_4S_4O_6\}^{4+}$. Two isomers were evidenced in aqueous solution and the isomerization process and its kinetics were studied by ^{31}P NMR spectroscopy.

Tripodal Cyclometalation

M. Guelfi, L. Calucci, C. Forte, P. Pertici,
G. Denti* 3529–3533

Reactivity of Tris(1-pyrazolyl)methane Towards Ru^0 Complexes

Keywords: Metallacycles / Tripodal ligands / Ruthenium / Hydrides

Ru^0 complexes can undergo a cyclometalation reaction with tris(1-pyrazolyl)methane to yield a stable Ru^{II} hydride species, the structure of which has been studied by NMR techniques. This complex reacts with chloroform to give the analogue containing a chlorido in place of the hydrido ligand, but with different structural features.

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* Author to whom correspondence should be addressed.

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